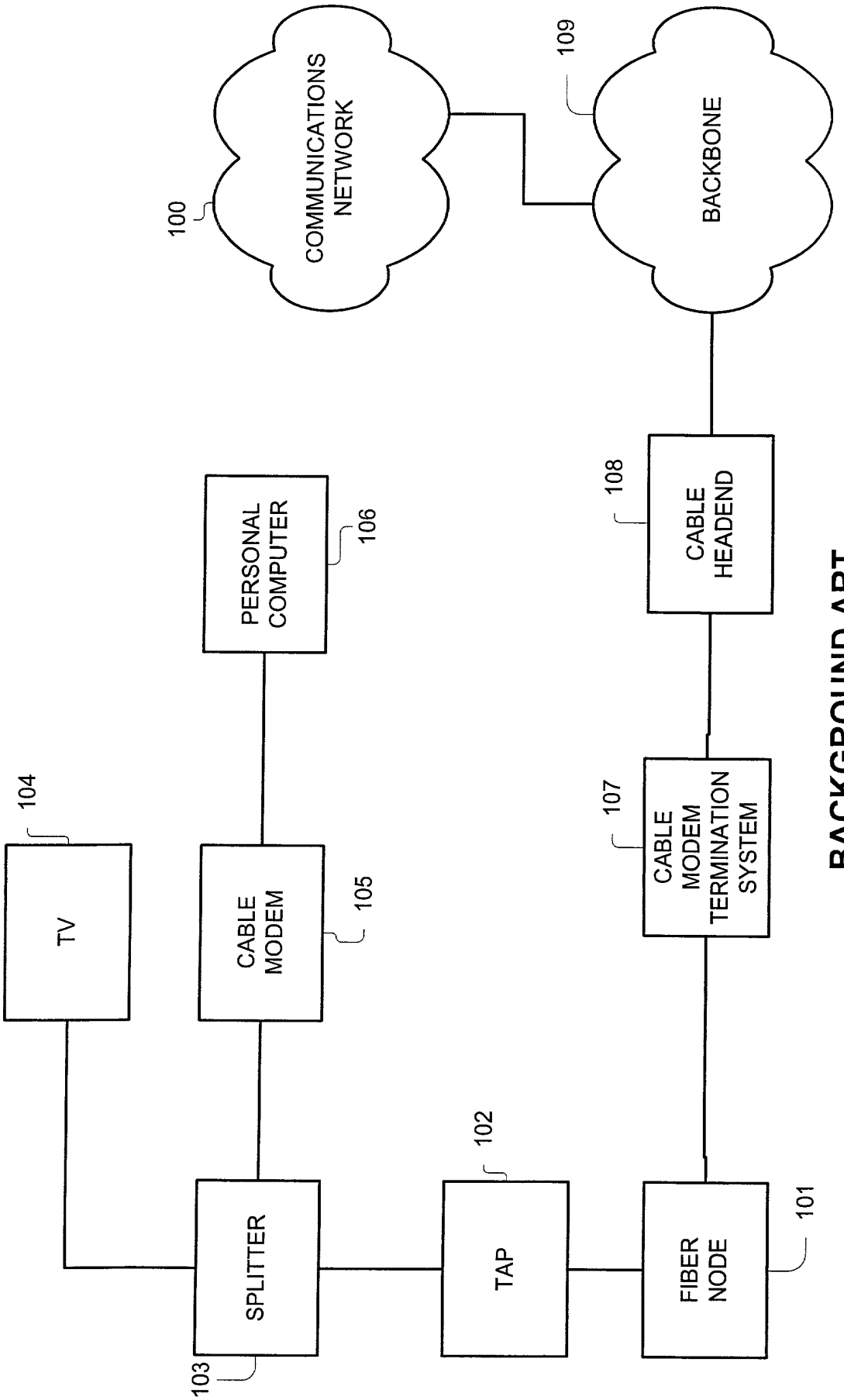
FIGURE 1




BACKGROUND ART

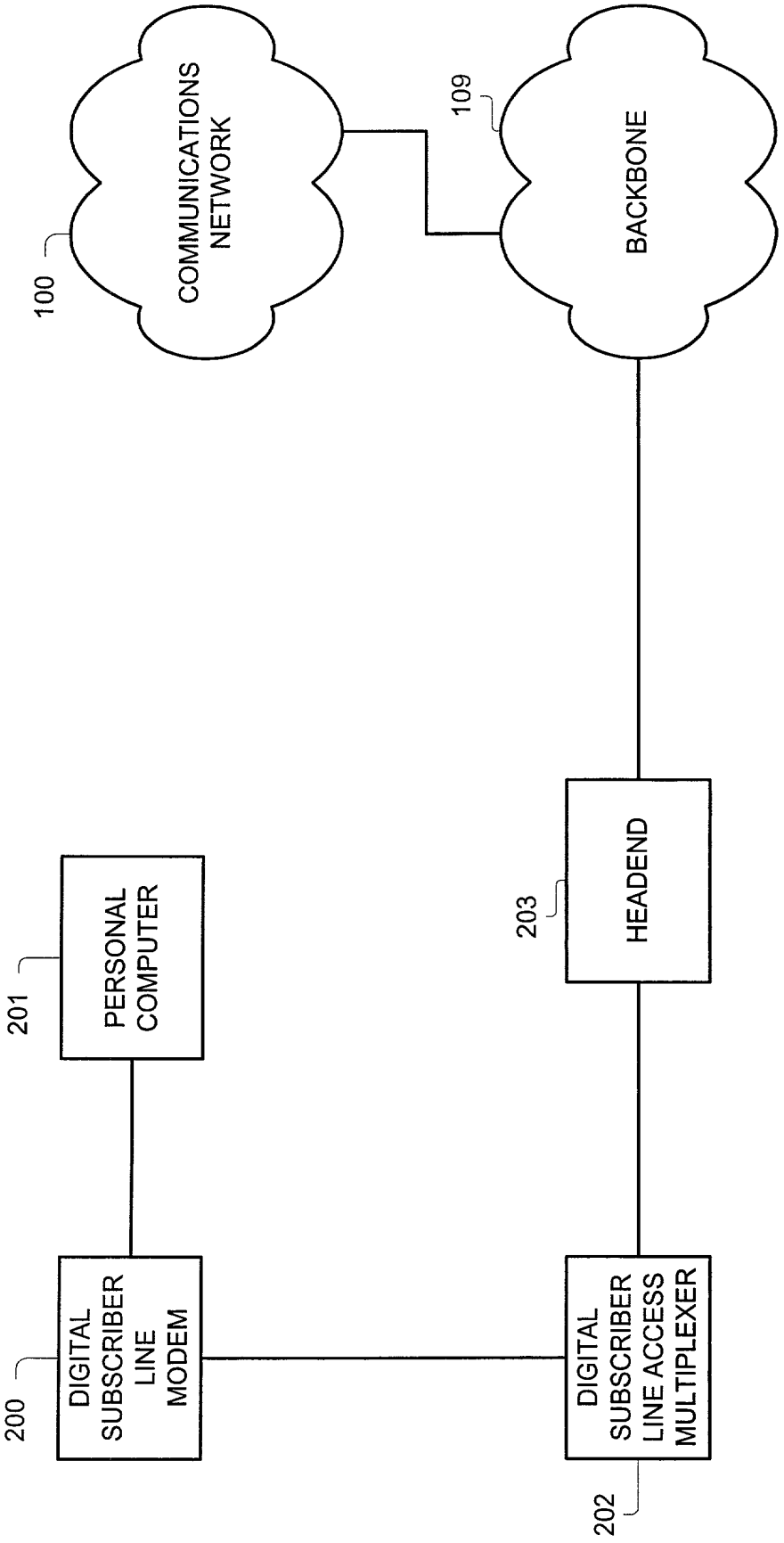



FIGURE 2

BACKGROUND ART

FIGURE 3

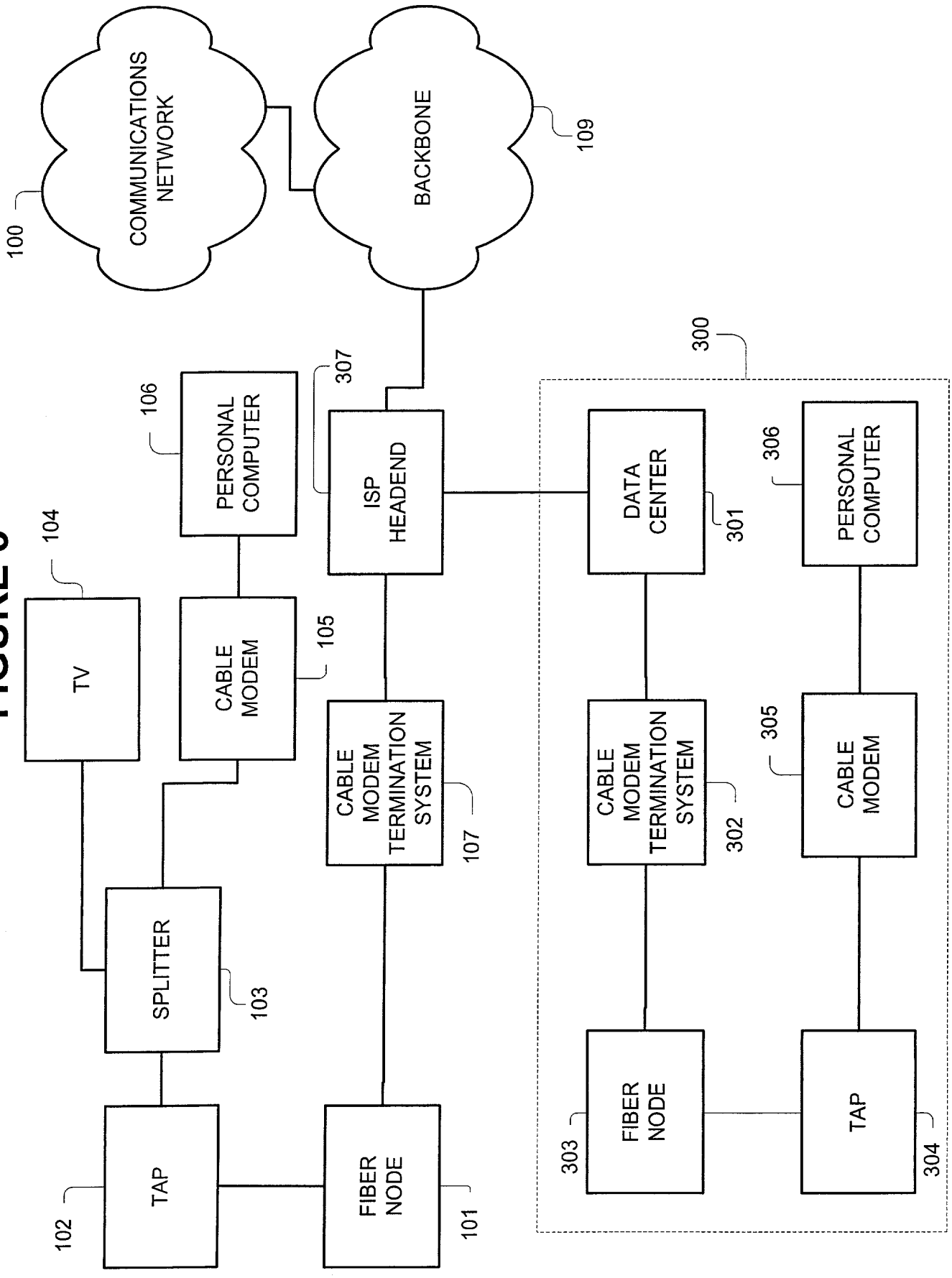
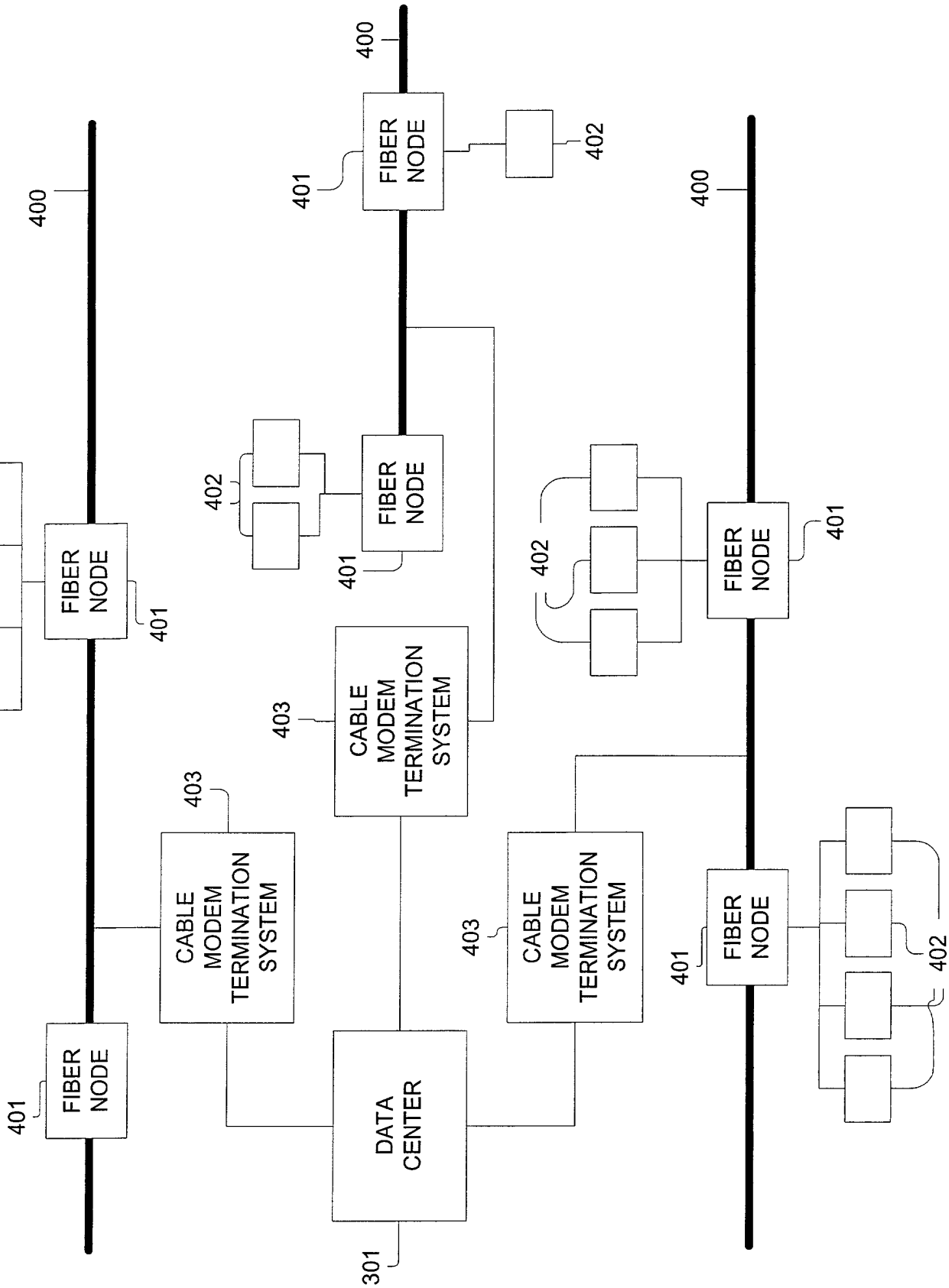

COMMUNICATIONS NETWORK
100
BACKBONE
109
300
PERSONAL COMPUTER
106
307
ISP HEADEND
DATA CENTER
301
306
PERSONAL COMPUTER
TV
104
CABLE MODEM
105
CABLE MODEM TERMINATION SYSTEM
107
CABLE MODEM TERMINATION SYSTEM
302
305
CABLE MODEM
SPLITTER
103
TAP
102
FIBER NODE
101
FIBER NODE
303
TAP
304

FIGURE 4


400
401
FIBER NODE
402
403
CABLE MODEM TERMINATION SYSTEM
DATA CENTER
301

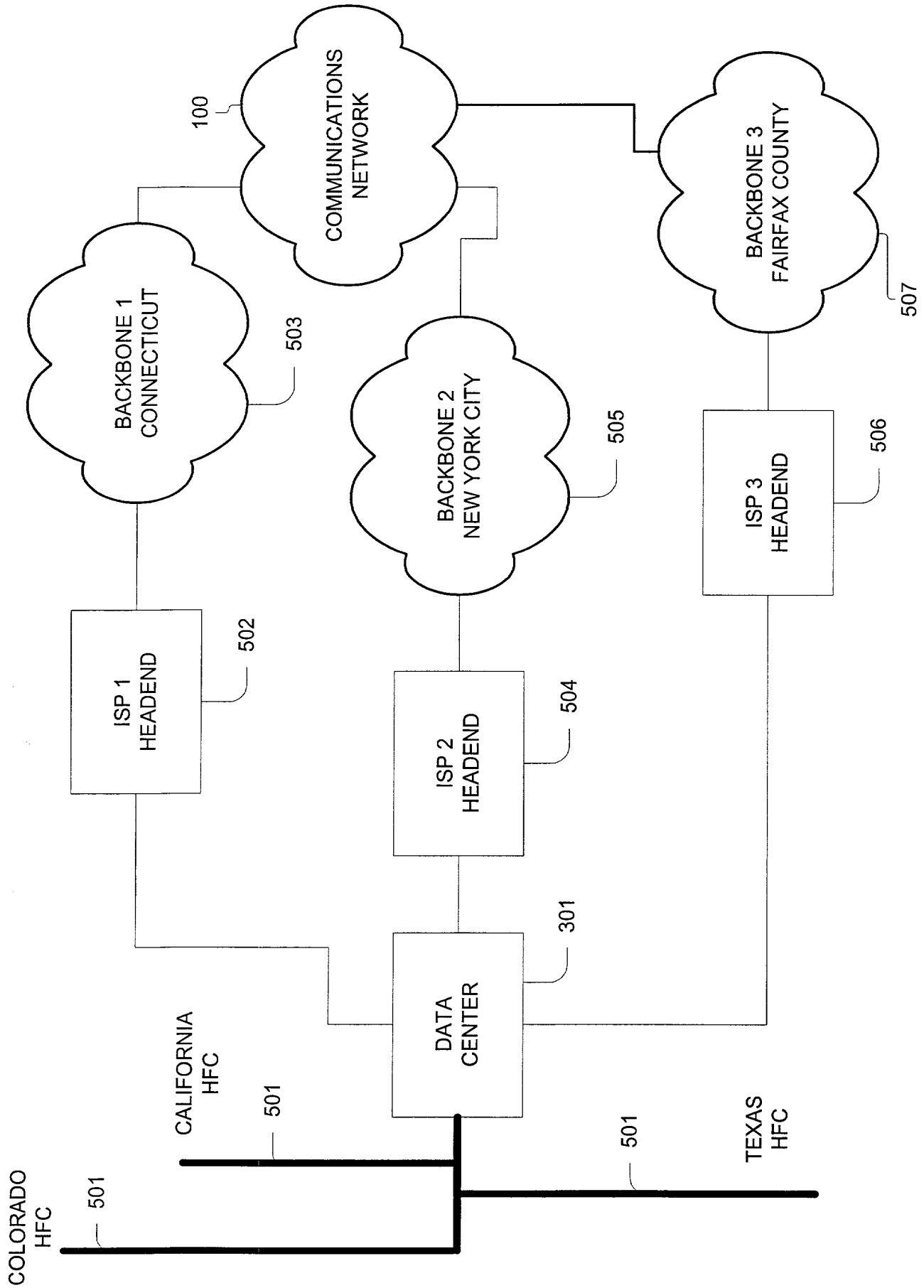

COMMUNICATIONS NETWORK
100
BACKBONE 1 CONNECTICUT
503
BACKBONE 2 NEW YORK CITY
505
BACKBONE 3 FAIRFAX COUNTY
507
ISP 1 HEADEND
502
ISP 2 HEADEND
504
ISP 3 HEADEND
506
DATA CENTER
301
CALIFORNIA HFC
501
COLORADO HFC
501
TEXAS HFC
501

FIGURE 5

FIGURE 6

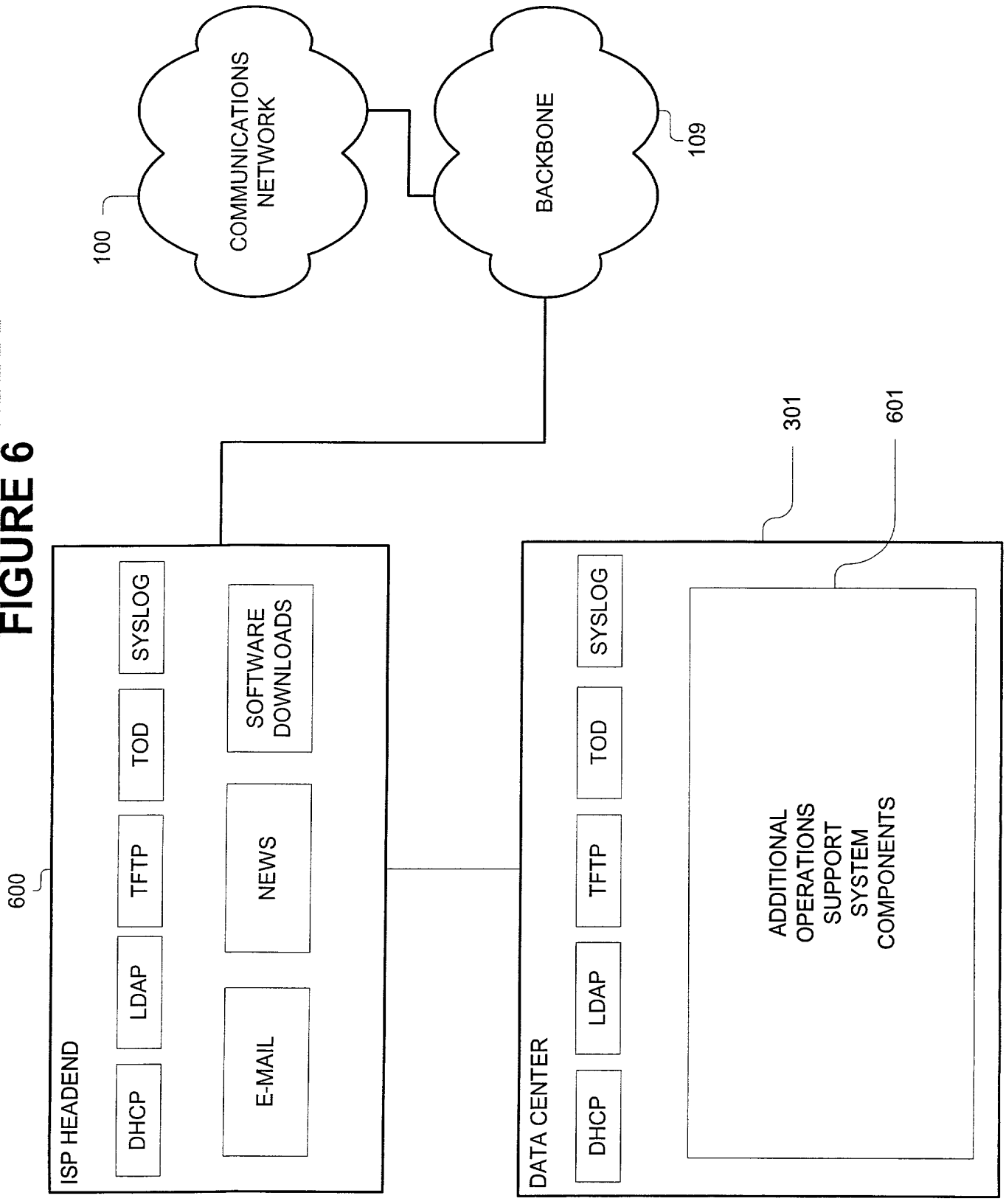

COMMUNICATIONS NETWORK
100
BACKBONE
109
301
601
600
ISP HEADEND
DHCP
LDAP
TFTP
TOD
SYSLOG
E-MAIL
NEWS
SOFTWARE DOWNLOADS
DATA CENTER
DHCP
LDAP
TFTP
TOD
SYSLOG
ADDITIONAL OPERATIONS SUPPORT SYSTEM COMPONENTS

FIGURE 7

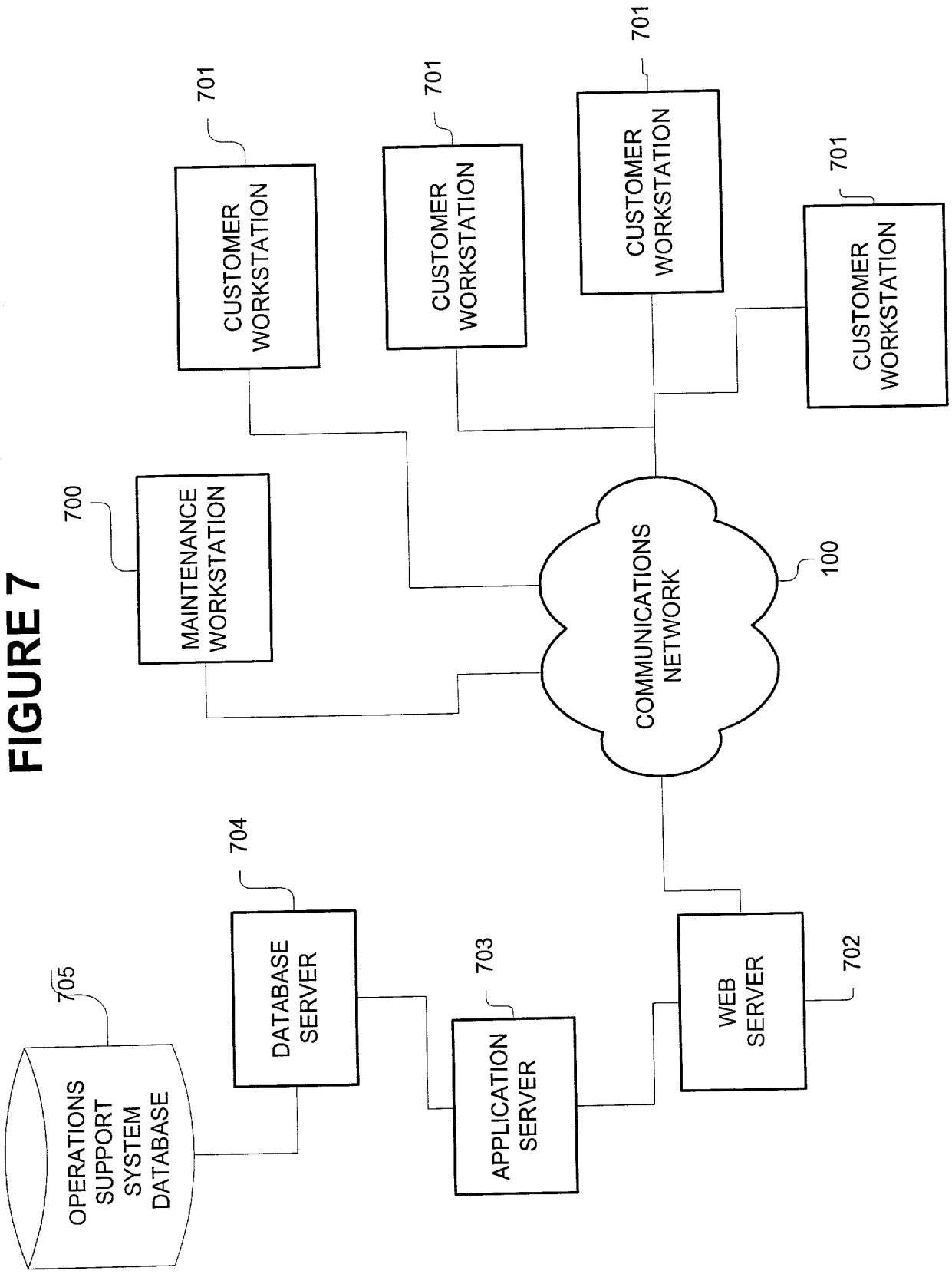
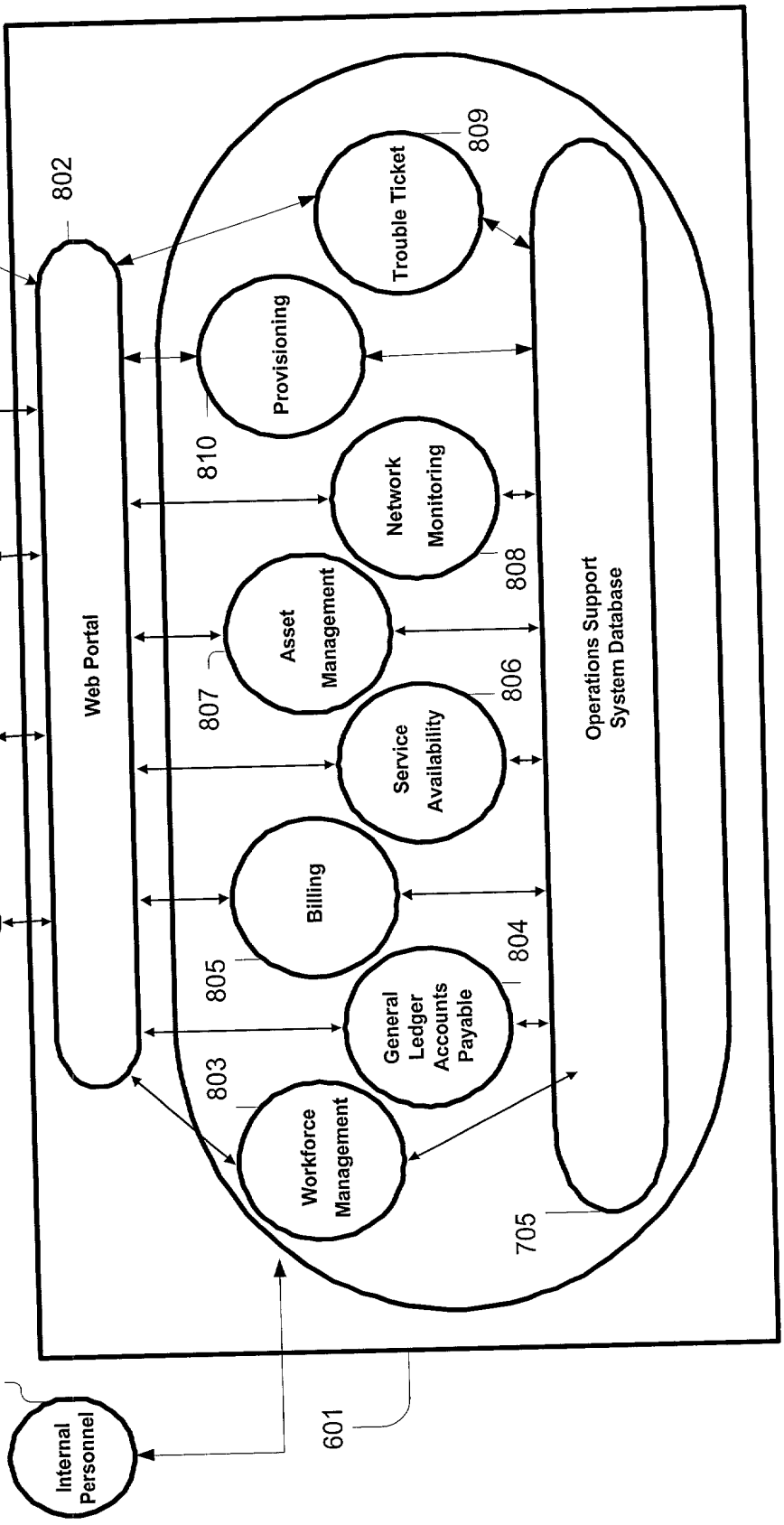
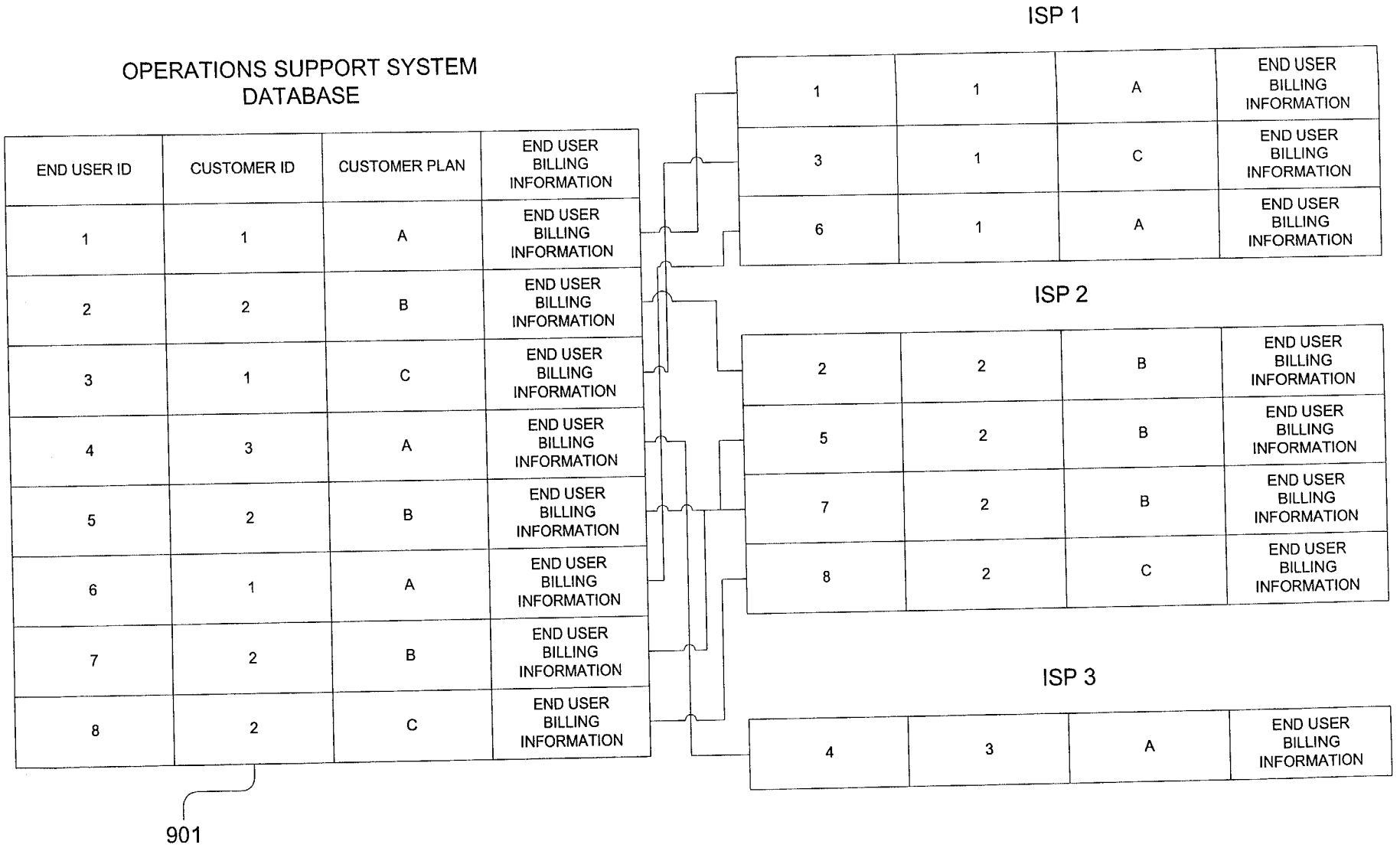

701
CUSTOMER WORKSTATION
701
CUSTOMER WORKSTATION
701
CUSTOMER WORKSTATION
701
CUSTOMER WORKSTATION
700
MAINTENANCE WORKSTATION
COMMUNICATIONS NETWORK
100
704
DATABASE SERVER
703
APPLICATION SERVER
702
WEB SERVER
705
OPERATIONS SUPPORT SYSTEM DATABASE

FIGURE 8

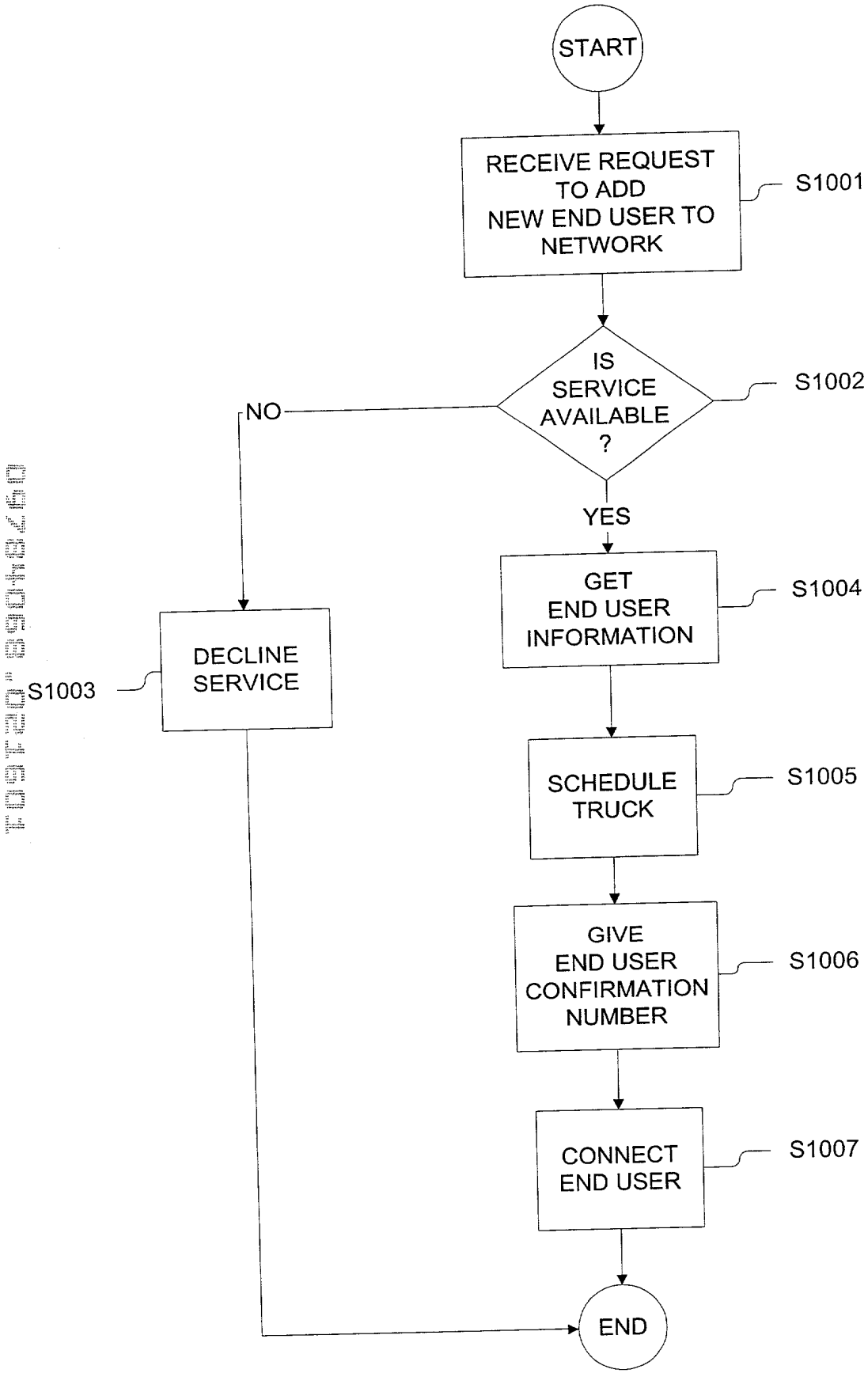

Internal Personnel
800
601
Web Portal
802
Operations Support System Database
705
Workforce Management
803
General Ledger Accounts Payable
804
Billing
805
Service Availability
806
Asset Management
807
Network Monitoring
808
Provisioning
810
Trouble Ticket
809
End-User
811
Internal Personnel
800
Customer
801
Customer
801
Customer
801

TO9T20 890t82/60

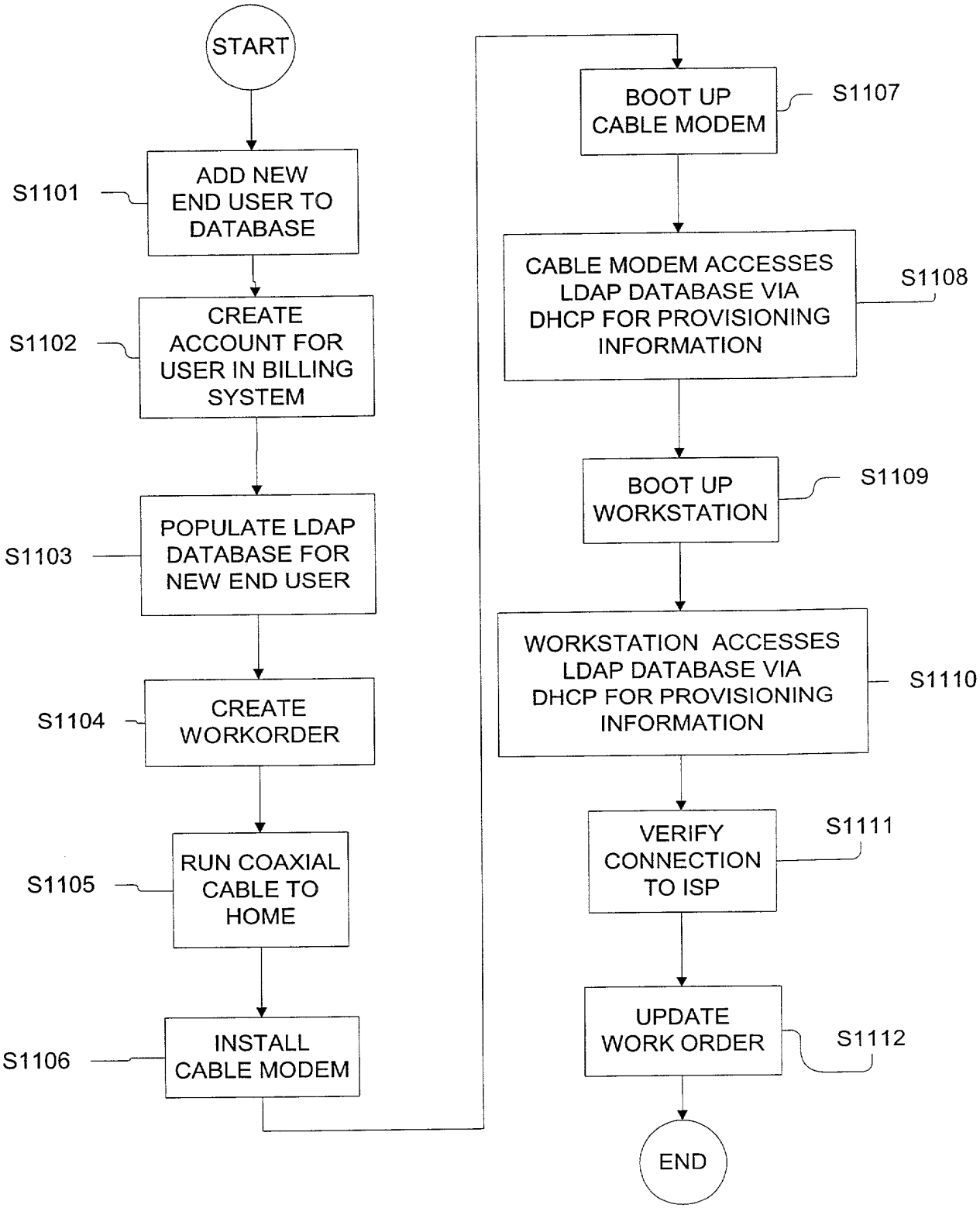
# FIGURE 9



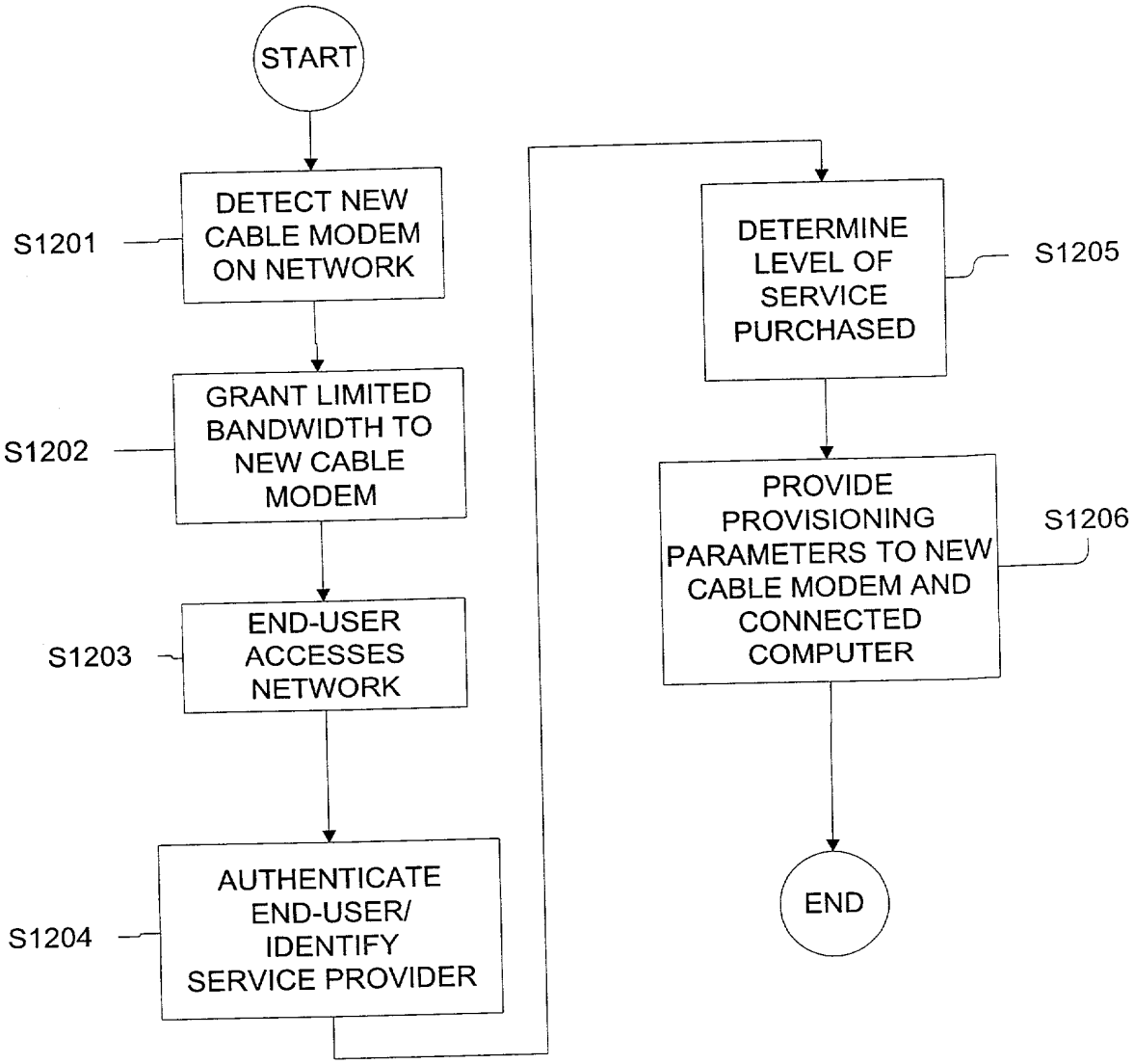
# FIGURE 10


START
RECEIVE REQUEST TO ADD NEW END USER TO NETWORK
S1001
IS SERVICE AVAILABLE ?
S1002
NO
YES
DECLINE SERVICE
S1003
GET END USER INFORMATION
S1004
SCHEDULE TRUCK
S1005
GIVE END USER CONFIRMATION NUMBER
S1006
CONNECT END USER
S1007
END

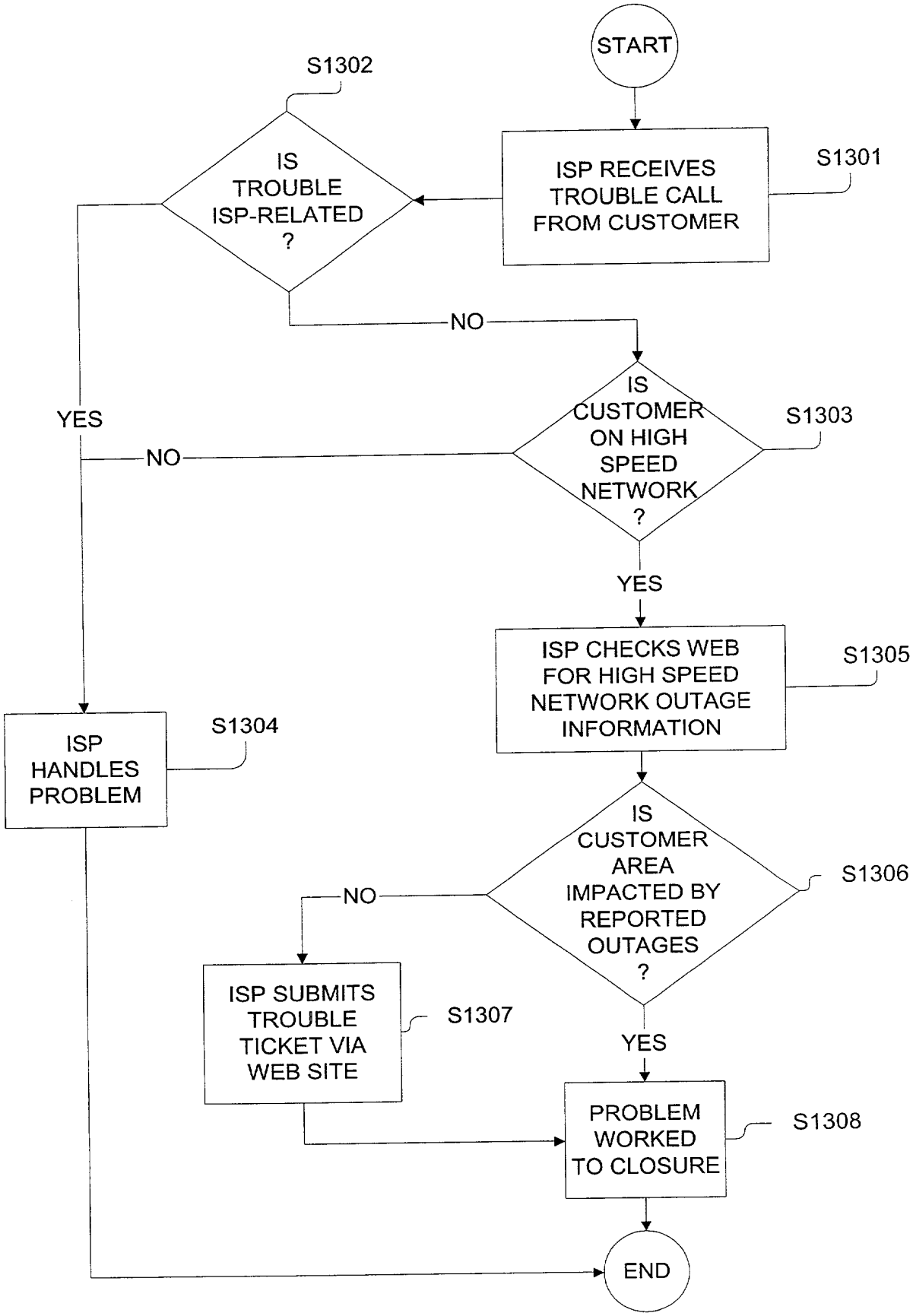
# FIGURE 11


START
S1101
ADD NEW END USER TO DATABASE
S1102
CREATE ACCOUNT FOR USER IN BILLING SYSTEM
S1103
POPULATE LDAP DATABASE FOR NEW END USER
S1104
CREATE WORKORDER
S1105
RUN COAXIAL CABLE TO HOME
S1106
INSTALL CABLE MODEM
S1107
BOOT UP CABLE MODEM
S1108
CABLE MODEM ACCESSES LDAP DATABASE VIA DHCP FOR PROVISIONING INFORMATION
S1109
BOOT UP WORKSTATION
S1110
WORKSTATION ACCESSES LDAP DATABASE VIA DHCP FOR PROVISIONING INFORMATION
S1111
VERIFY CONNECTION TO ISP
S1112
UPDATE WORK ORDER
END

# FIGURE 12


START
S1201
DETECT NEW CABLE MODEM ON NETWORK
S1202
GRANT LIMITED BANDWIDTH TO NEW CABLE MODEM
S1203
END-USER ACCESSES NETWORK
S1204
AUTHENTICATE END-USER/ IDENTIFY SERVICE PROVIDER
S1205
DETERMINE LEVEL OF SERVICE PURCHASED
S1206
PROVIDE PROVISIONING PARAMETERS TO NEW CABLE MODEM AND CONNECTED COMPUTER
END

# FIGURE 13


START
S1301
ISP RECEIVES TROUBLE CALL FROM CUSTOMER
S1302
IS TROUBLE ISP-RELATED ?
YES
NO
S1303
IS CUSTOMER ON HIGH SPEED NETWORK ?
YES
NO
S1304
ISP HANDLES PROBLEM
S1305
ISP CHECKS WEB FOR HIGH SPEED NETWORK OUTAGE INFORMATION
S1306
IS CUSTOMER AREA IMPACTED BY REPORTED OUTAGES ?
YES
NO
S1307
ISP SUBMITS TROUBLE TICKET VIA WEB SITE
S1308
PROBLEM WORKED TO CLOSURE
END

# FIGURE 14

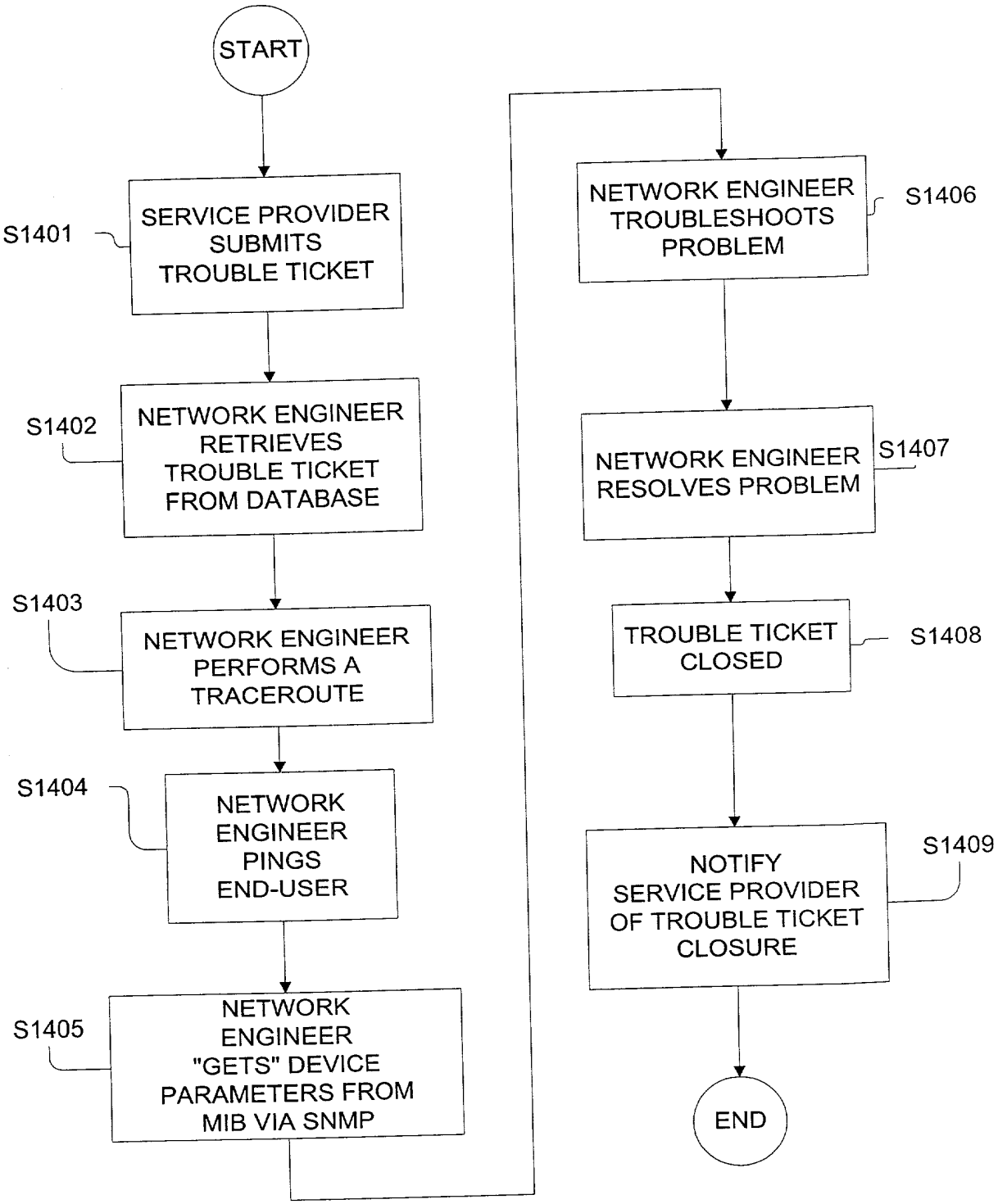
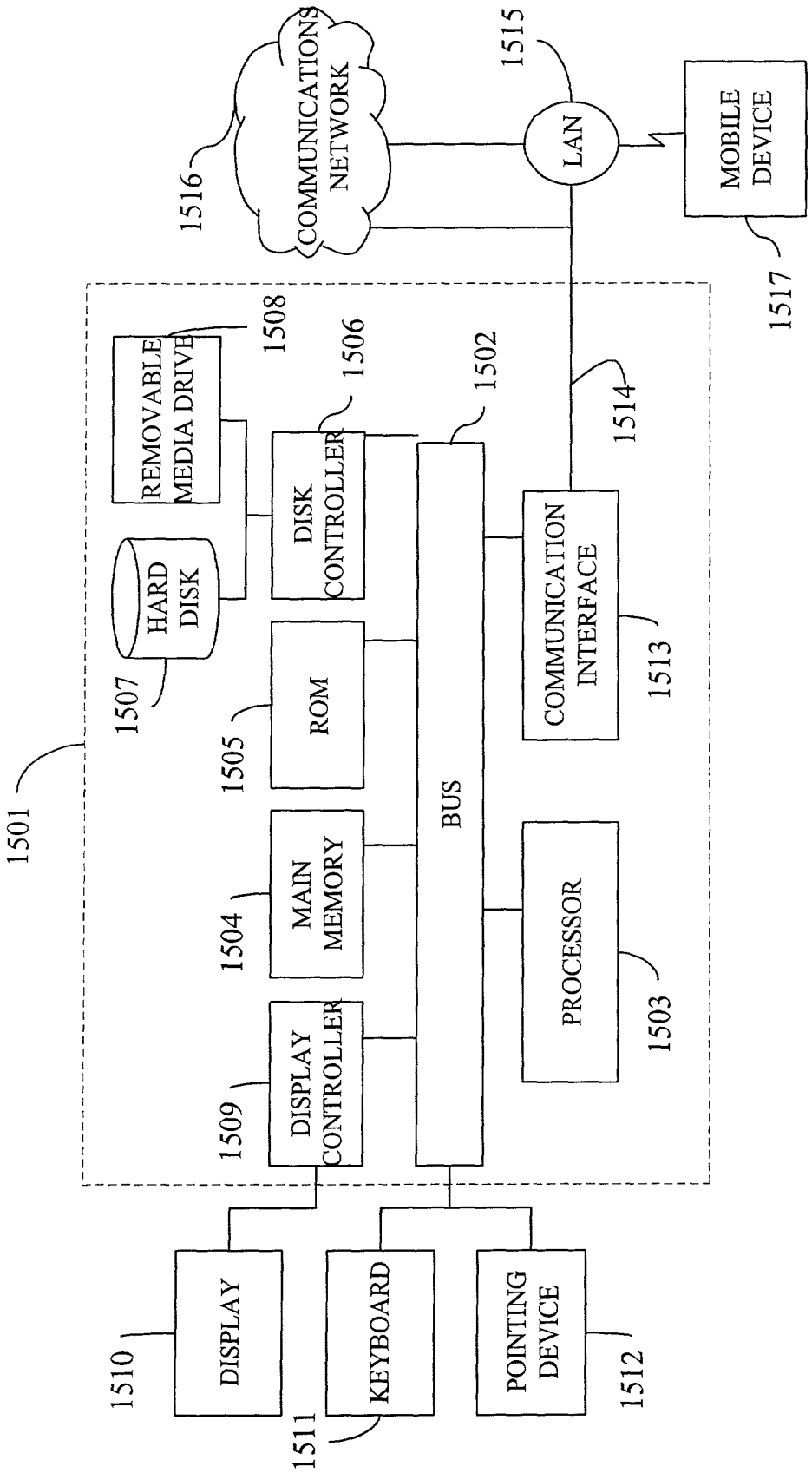

START
S1401
SERVICE PROVIDER SUBMITS TROUBLE TICKET
S1402
NETWORK ENGINEER RETRIEVES TROUBLE TICKET FROM DATABASE
S1403
NETWORK ENGINEER PERFORMS A TRACEROUTE
S1404
NETWORK ENGINEER PINGS END-USER
S1405
NETWORK ENGINEER "GETS" DEVICE PARAMETERS FROM MIB VIA SNMP
S1406
NETWORK ENGINEER TROUBLESHOOTS PROBLEM
S1407
NETWORK ENGINEER RESOLVES PROBLEM
S1408
TROUBLE TICKET CLOSED
S1409
NOTIFY SERVICE PROVIDER OF TROUBLE TICKET CLOSURE
END

FIGURE 15


1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
COMMUNICATIONS NETWORK
LAN
MOBILE DEVICE
REMOVABLE MEDIA DRIVE
HARD DISK
DISK CONTROLLER
ROM
MAIN MEMORY
DISPLAY CONTROLLER
BUS
COMMUNICATION INTERFACE
PROCESSOR
DISPLAY
KEYBOARD
POINTING DEVICE